

## **REMARKS**

This Amendment and Response is submitted in response to the Office Action mailed 27 OCTOBER 2003. Withdrawal of the rejection and reconsideration with an eye toward allowance is respectfully requested.

### **Claim Status**

Claims 1-32 are pending after entry of the present amendment. Claims 1-15 stand rejected, and claims 16-20 have been withdrawn. Claim 1 is amended herein for technical clarity. Claim 3 is amended herein to depend from claim 2. Claims 21-32 are added. A complete listing of all claims that are, or were in the application, along with an appropriate status identifier, is provided above in the section entitled "Amendments to the Claims". Markings are provided on claims amended in the present amendment.

Support for the above claim amendments can be found throughout the originally filed specification, drawings, and claims – for example see page 10, lines 23-25 and page 11.

### **Election/Restriction**

Applicant confirms the provisional election of Group I, claims 1-15, made during a telephone conversation with David Brezner. Claims 16-20 have been withdrawn.

### **Claim Rejections – 35 U.S.C. §112**

Claims 1-15 were rejected under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The Examiner suggests that the term "readily removable" in claim 1 is not defined by the claim. Applicant has amended claim 1 such that the phrase "readily removable" no longer appears.

The Examiner stated that there is insufficient antecedent basis for "said contact region" in claim 3. Applicant has amended claim 3 to depend from claim 2, and submits that proper antecedent basis is now provided.

Accordingly, Applicant trusts that the rejection of claims 1-15 under 35 U.S.C. §112, second paragraph, will be withdrawn.

**Claim Rejections – 35 U.S.C. §103**

**Claims 1, 4-6, 8, 10, and 15**

Claims 1, 4-6, 8, 10, and 15 were rejected under 35 U.S.C. §103(a) as being unpatentable over Applicant's ED40 electrochemical cell (Applicants' cell) in view of Finn (GB 2122354).

Applicants respectfully submit that there is not a proper motivation to combine these teachings.

Further, Applicant submits the references – taken alone or in combination – fail to teach, disclose, or suggest all limitations of independent claim 1, including “a disposable working electrode structure comprising an electrically conductive and electrochemically active working electrode region bound as a layer, directly or indirectly, to an electrically insulating substrate surface, said substrate surface being in fluid-sealing relationship with said sample flow channel, at least a portion of the substrate surface being exposed to the sample flow channel”.

In the specification, at page 1, Applicant mentions the electrochemical cell under the trademark ED40. Such cells include an amperometric working electrode in the form of a cylindrical wire embedded into a plastic block with the tip of the wire exposed to a sample flow-through channel, typically enclosed by a plastic gasket held in place under compression (see page 1, lines 5-10). Attached hereto is a photograph of three embedded-electrode assemblies of the type discussed on page 1 along with one disposable electrode in accordance with the present invention (Exhibit 1 attached hereto).

Finn is directed toward an electrochemical cell particularly for sensing hydrogen in solution or gases (see Abstract). Finn describes an electrode assembly 17 comprising a substantially planar electrode member 17A in the form of a metallised membrane (see page 2, lines 4-6 and FIG. 2). Finn discloses that the working electrode comprises a metallised membrane for example a PTFE substrate coated on the surface thereof proximal to the counter electrode firstly with a thin layer of gold and thereafter with a thin layer of platinum (see page 1, lines 52-56). As shown in FIG. 2, and described on page 2, lines 4-22, Applicant submits that the area of the electrode exposed to the sample test chamber 18 is defined by the O-ring seal 17D.

First, Applicant submits that proper motivation to combine the teachings is lacking. Applicant's discussion of the electrochemical cell bearing trademark ED40 clearly indicates that the cells include an amperometric working electrode in the form of a cylindrical wire embedded into a plastic block with the tip of the wire exposed. Accordingly, the amount of the working electrode exposed to the sample chamber depends on the geometry and diameter of the exposed wire. As discussed above, in the system of Finn, the amount of working electrode exposed to the sample chamber depends on the size and geometry of an O-ring. Applicant submits that the large area of exposed working electrode generated by the system of Finn would render the system of ED40 unsuitable for its intended purpose. The significant increase in electrode size would prevent or

hamper the operation of the system. For at least this reason, Applicant submits that the combination of references is improper. See MPEP 2143.01 ("If proposed modification would render the prior art invention unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification").

Applicant further submits that the references, taken alone or in combination, fail to disclose or suggest all limitations of Applicant's claim 1 including "a disposable working electrode structure comprising an electrically conductive and electrochemically active working electrode region bound as a layer, directly or indirectly, to an electrically insulating substrate surface, said substrate surface being in fluid-sealing relationship with said sample flow channel, at least a portion of the substrate surface being exposed to the sample flow channel". The Examiner concedes that Applicant's cell does not disclose this feature (see office action, page 5). Applicant submits that Finn fails to teach, disclose or suggest this feature. Finn discloses a metallised membrane on a surface. The metallised membrane is exposed to a sample test chamber in a manner defined by an O-ring seal. Finn does not disclose a working electrode region bound to an electrically insulating substrate surface in which at least a portion of the substrate surface being exposed to the sample flow channel. Accordingly, Applicant submits that Applicants' cells and Finn, taken individually or combined, do not render the presently claimed invention obvious.

Claims 4-6, 8, 10, and 15 depend from and include all limitations of Applicant's independent claim 1. Accordingly, Applicant submits that claims 4-6, 8, 10, and 15 are patentable over Applicant's cell in view of Finn for at least the reasons described above with regard to claim 1.

### **Claims 2 and 3**

Claims 2 and 3 were rejected under 35 U.S.C. §103(a) as being unpatentable over Applicant's cell in view of Finn and further in view of Wickersham (U.S. Patent Number 3,654,585). Claims 2 and 3 depend from and include all limitations of independent claim 1. Applicant submits that the references fail to teach, suggest or disclose all limitations of claim 1 including "a disposable working electrode structure comprising an electrically conductive and electrochemically active working electrode region bound as a layer, directly or indirectly, to an electrically insulating substrate surface, said substrate surface being in fluid-sealing relationship with said sample flow channel, at least a portion of the substrate surface being exposed to the sample flow channel".

Applicant's cell and Finn are discussed above, and Applicant submits the references fail to disclose all limitations of claim 1. Applicant further submits that there is no motivation to combine the two teachings.

Wickersham is directed coordinate conversion for the testing of printed circuit boards (see title). An array of spring pin contact elements are arranged in a matrix on a uniform rectangular grid and, through a coordinate conversion interface, provide access to the random arranged contact

points of a single or multiple layer printed circuit board. The interface is a transition plate constructed in accordance with the artwork of a given board and comprises a base plate provided with contact pads on one side having the same random arrangement as the contact points of the board, and corresponding contact points on the opposite side each positioned at an individual contact location having the same planar coordinates as a particular one of the spring pin contact elements (see abstract). In this manner, Wickersham performs a coordinate conversion between a printed circuit board and an array of spring pin contacts.

First, Applicant submits that suitable motivation to combine the teachings of Wickersham with the system of Applicant's cell and/or Finn has not been provided. The Examiner suggests that the motivation would be to allow for easy removal of the working electrode as well as to allow the contact region and the connection pin to be placed outside of fluid contact with the sample flow channel (see office action, page 6). Applicant respectfully submits that this motivation has been taken from Applicant's disclosure, and not from the cited references or general knowledge available in the art. Wickersham is directed exclusively to the testing of printed circuit boards, and does not motivate the placing of a contact region outside of fluid contact. Indeed, there are no relevant fluids in the system of Wickersham. Accordingly, Applicant submits that the combination of references is improper.

Further, Applicant submits that the cited references fail to disclose all limitations of Applicant's claim 1 including "a disposable working electrode structure comprising an electrically conductive and electrochemically active working electrode region bound as a layer, directly or indirectly, to an electrically insulating substrate surface, said substrate surface being in fluid-sealing relationship with said sample flow channel, at least a portion of the substrate surface being exposed to the sample flow channel". That Applicant's cell and Finn do not disclose this limitation is discussed above. Wickersham is directed solely to the testing of printed circuit boards and fails to disclose an active working electrode as recited in claim 1. Accordingly, at least because claims 2 and 3 depend from and include all limitations of Applicant's claim 1, Applicant submits that the 35 U.S.C. §103(a) rejection of claims 2 and 3 is improper, and should be withdrawn.

#### **Claims 7, 9, and 11-14**

Claims 7, 9, and 11-14 were rejected under 35 U.S.C. §103(a) as being unpatentable over Applicant's cell in view of Finn in further view of Go (U.S. Patent Number 5,104,820). Claims 7, 9, and 11-14 depend from and include all limitations of independent claim 1. Applicant submits that the references fail to teach, suggest or disclose all limitations of claim 1 including "a disposable working electrode structure comprising an electrically conductive and electrochemically active working electrode region bound as a layer, directly or indirectly, to an electrically insulating substrate surface,

said substrate surface being in fluid-sealing relationship with said sample flow channel, at least a portion of the substrate surface being exposed to the sample flow channel".

Applicant's cell and Finn are discussed above, and Applicant submits the references fail to disclose all limitations of claim 1. Applicant further submits that there is no motivation to combine the two teachings.

Go is directed toward a method of fabricating electronic circuitry unit containing stacked IC layers (see title).

Applicant submits that the cited references fail to disclose all limitations of Applicant's claim 1 including "a disposable working electrode structure comprising an electrically conductive and electrochemically active working electrode region bound as a layer, directly or indirectly, to an electrically insulating substrate surface, said substrate surface being in fluid-sealing relationship with said sample flow channel, at least a portion of the substrate surface being exposed to the sample flow channel". That Applicant's cell and Finn do not disclose this limitation is discussed above. Go is directed solely to the formation of electronic circuitry containing stacked IC layers and fails to disclose an active working electrode as recited in claim 1. Accordingly, at least because claims 7, 9, and 11-14 depend from and include all limitations of Applicant's claim 1, Applicant submits that the 35 U.S.C. §103(a) rejection of claims 7, 9, and 11-14 is improper, and should be withdrawn.

#### **New Claims**

Applicant has added new claims 21-32 which are also distinguished over the cited art. For example, claims 21-23 recite dimensions of a working electrode which are not disclosed by the cited art. New independent claim 24 is patentable over the cited art at least because of the recitation of the working electrode structure and sealing member.

#### **Requirement for Information**

Applicants submit herewith a supplemental information disclosure statement listing information that Applicant's believe is a complete reply to the Examiner's requirements.

In addition, Applicants directs the Examiner's attention to Exhibit A, attached hereto, that includes a photograph of three embedded-electrode assemblies of the type discussed on page 1 of the specification along with one disposable electrode in accordance with the present invention (Exhibit 1 attached hereto).

#### **CONCLUSION**

All of the stated grounds of objection and rejection have been properly traversed, accommodated, or rendered moot. Applicants therefore respectfully request that the Examiner

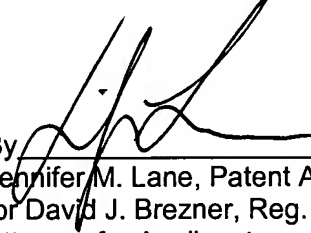
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reconsider all presently outstanding objections and rejections and that they be withdrawn. Applicants believe that a full and complete reply has been made to the outstanding Office Action and, as such, the present application is in condition for allowance. If the Examiner believes, for any reason, that personal communication will expedite prosecution of this application, the Examiner is invited to telephone the undersigned at the number provided below.

The Commissioner is hereby authorized to charge any underpayment of fees associated with this communication, including any necessary fees for extension of time or additional claims, and/or credit any overpayment to Deposit Account No. 50-2319 (Order No. 465377-00676; Docket No. A-70968/DJB/VEJ).

Prompt and favorable consideration of this Amendment and Response is respectfully requested.

Respectfully submitted,  
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